

Issues Facing Vietnam's Coal Industry: Discussion

***Charles J. Johnson
East-West Center***

***The 3rd APEC Coal TILF Workshop
Vietnam: Facilitating Development in the
Coal & Power Sectors***

***7-9 November 2000
Hilton Hanoi Opera Hotel
Hanoi, Vietnam***

Issues Facing Vietnam's Coal Industry: Discussion

Mining and Transportation

- Mineable Reserves
- Health and Safety
- Product Quality
- Mine Wastes
- Ports

Markets

- Export Markets (Slow Growth)
- Domestic Markets
 - Power
 - Cement
 - Other

Other Issues

- Public Concerns
- Environmental
- Attracting Capital
- Profitability

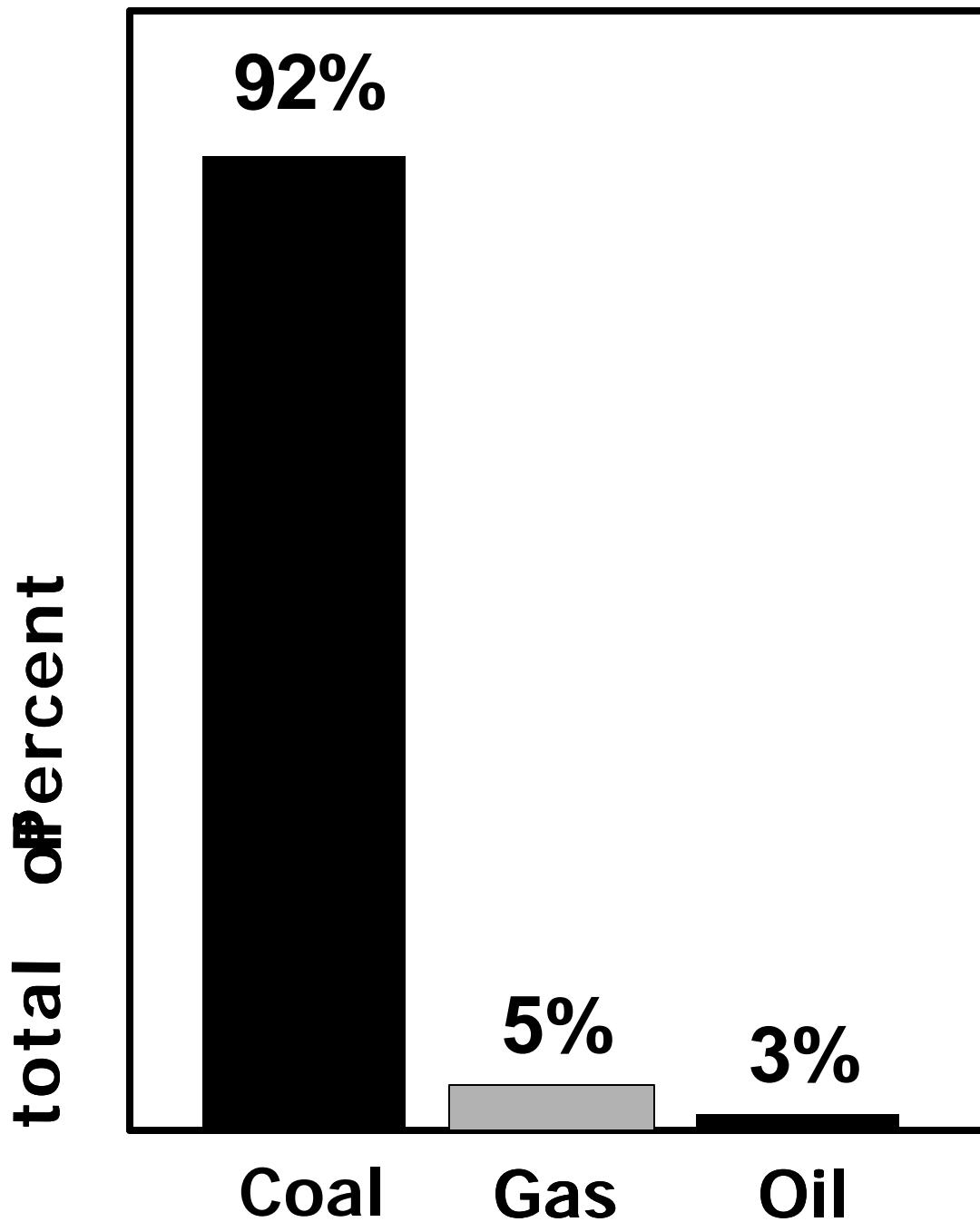
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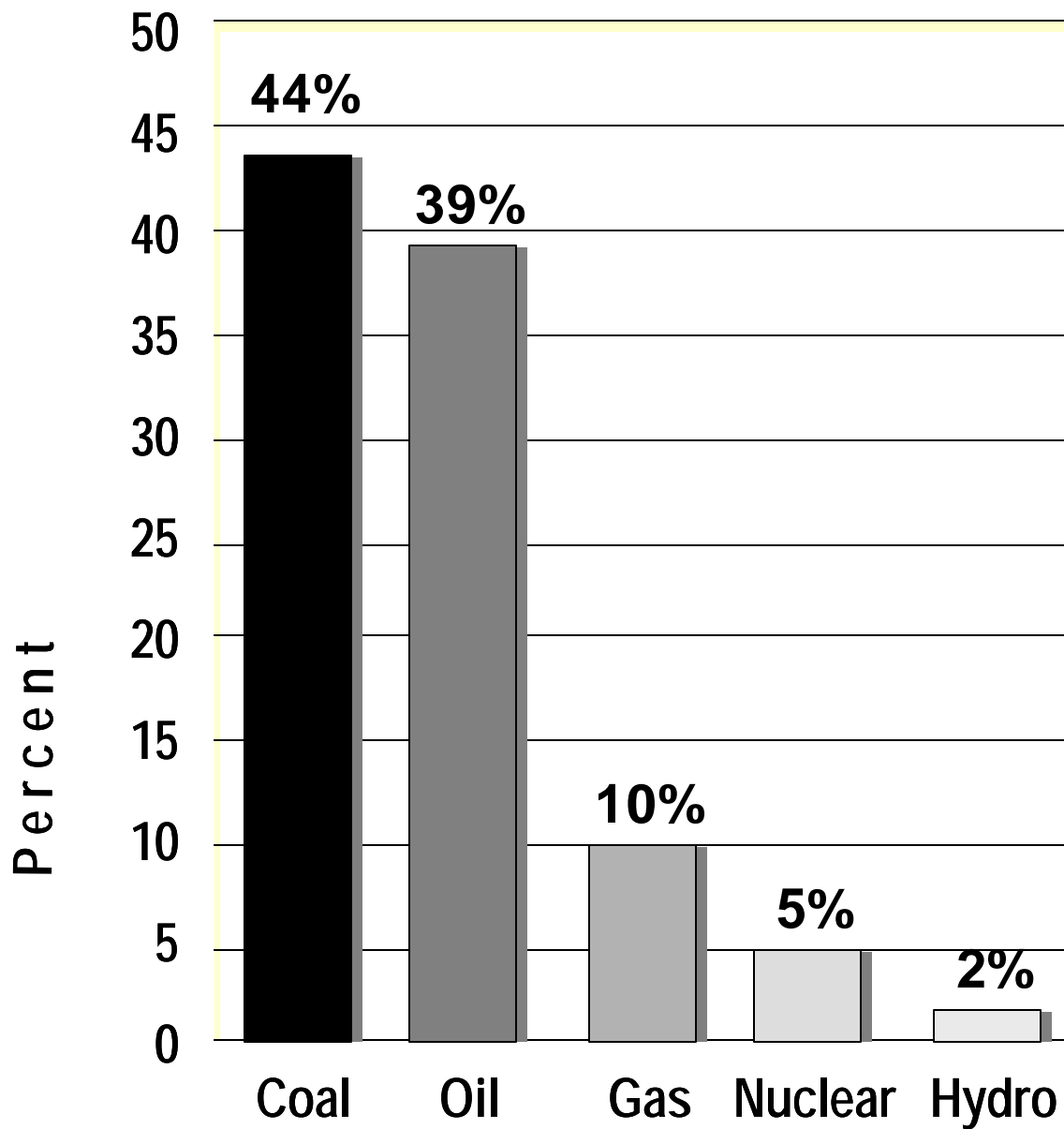
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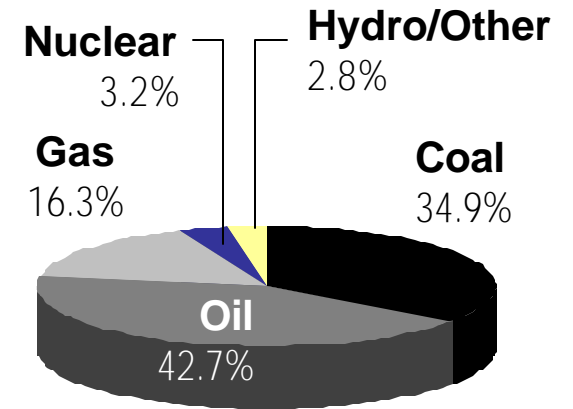
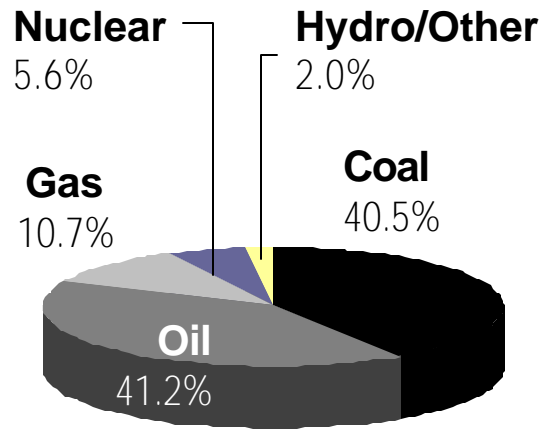
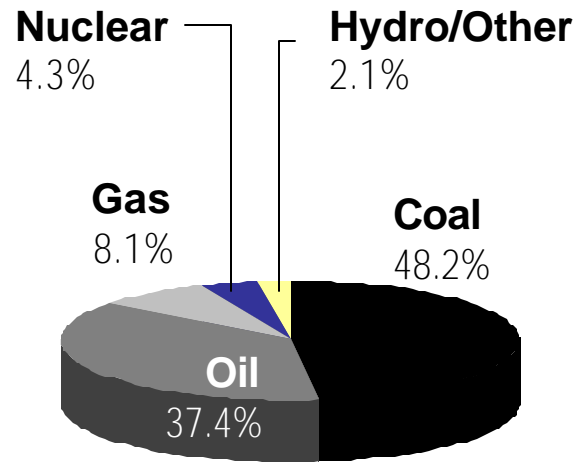
Shares of Fossil-Fuel Reserves in Asia

Source: Charles Johnson, East-West Center, February 2000

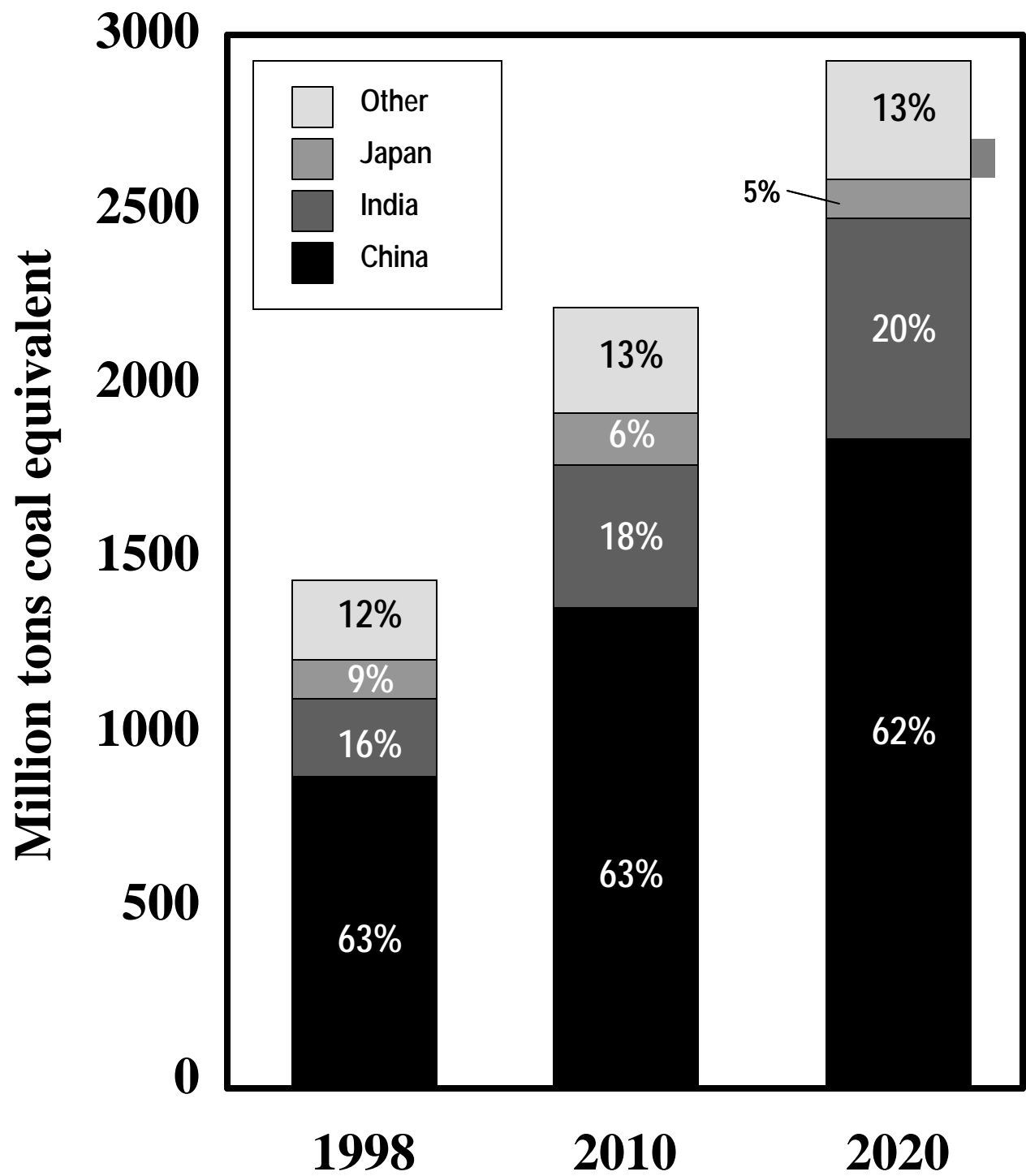


Primary energy mix by fuel types in Asia

Source: Modified by C. Johnson and S. Srisawaskraisorn from BP Amoco Statistical Review of World Energy 1999

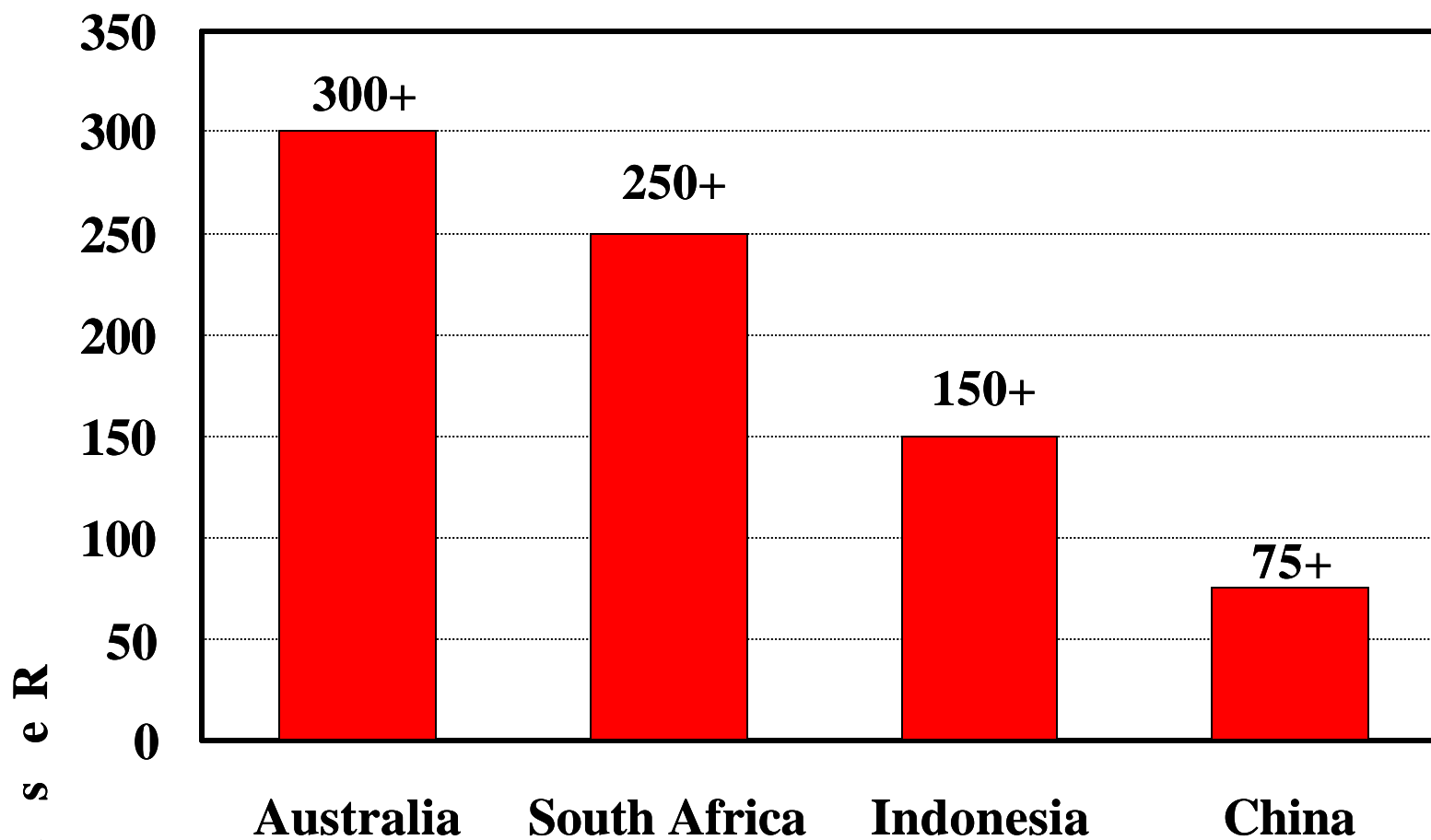


Asia's Primary Energy Mix in 1990, 1999 and 2020^e



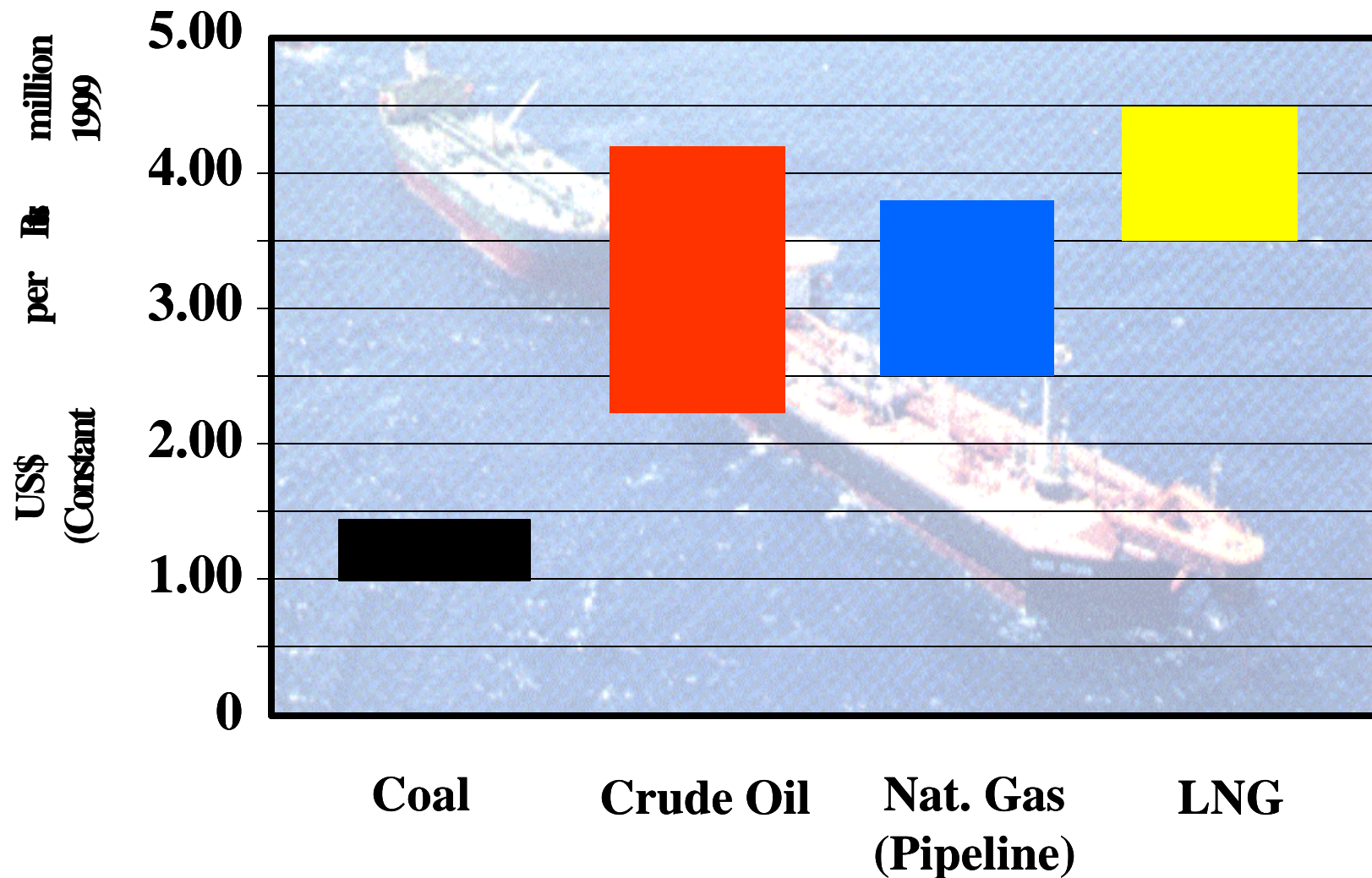
Asia-Pacific Coal Consumption: 1998-2020

Source: C. Johnson and S. Srisawaskraisorn, February 2000



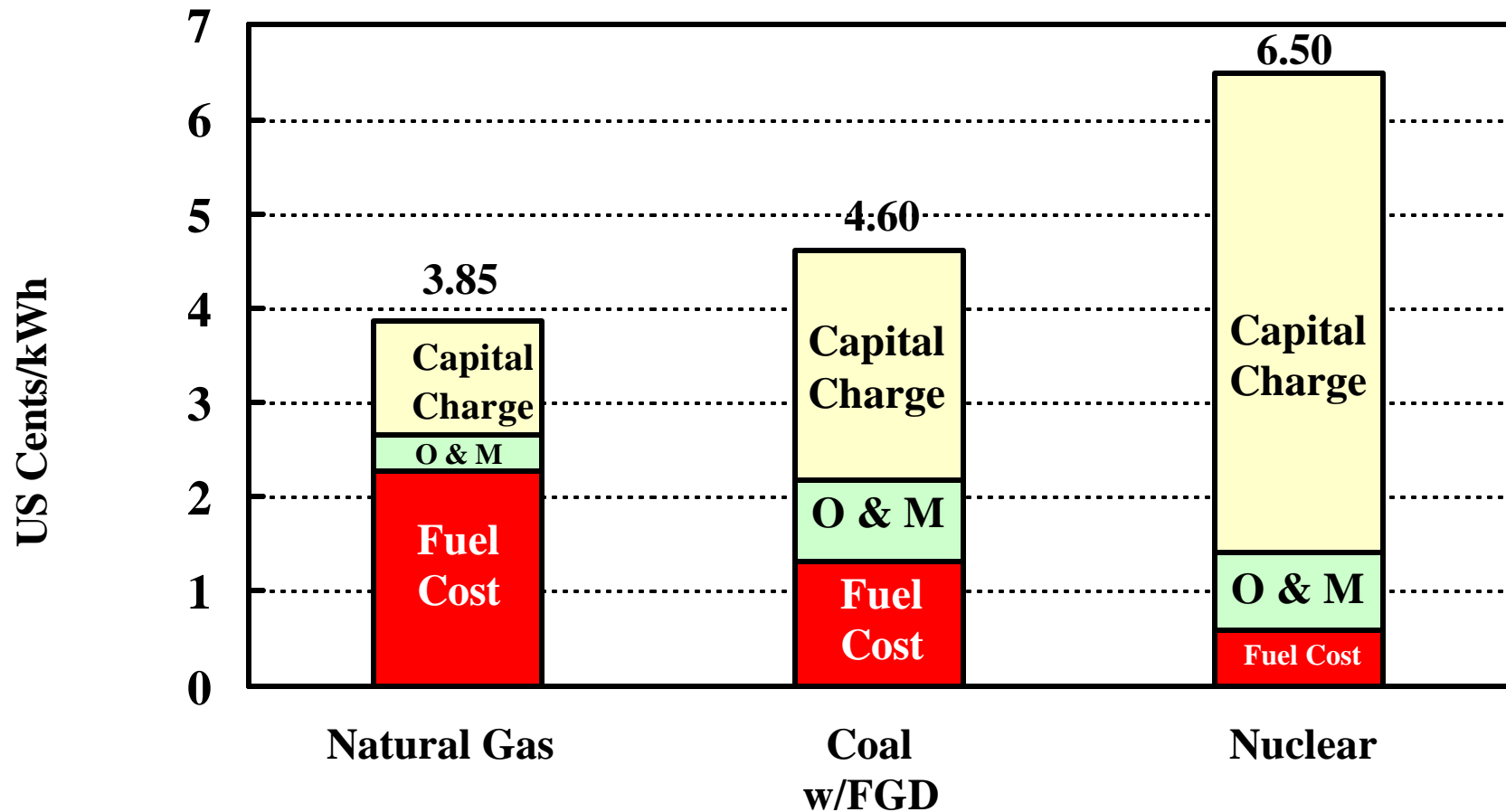
**Coal reserves/production for major coal traders
in the Asia-Pacific region**

Source: BP Statistical Review of World Energy and estimates by Charles Johnson, East-West Center, 8/98

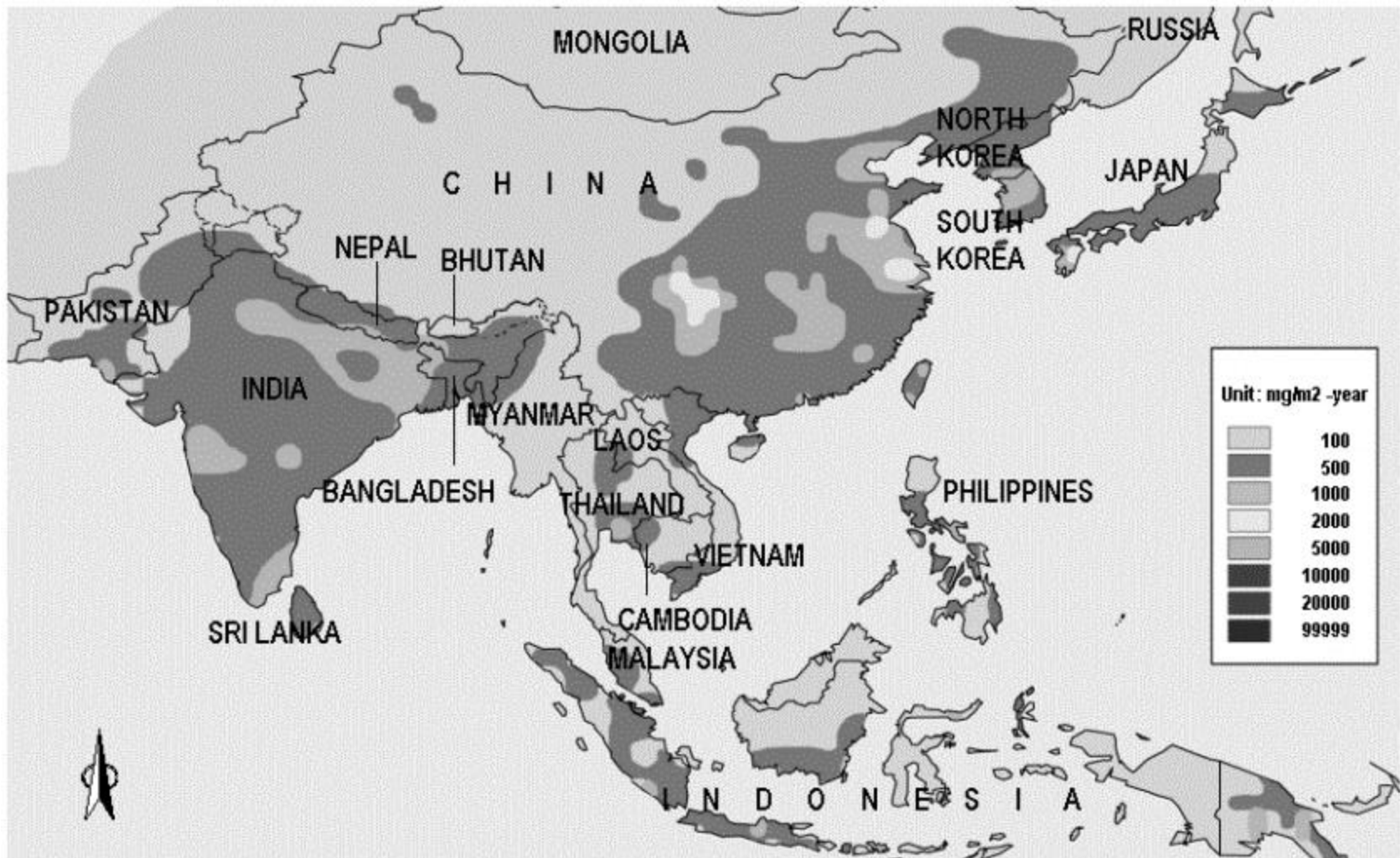


Range in long-term imported fuel prices in Asia

Source: C. Johnson and S. Srisawaskraisorn, East-West Center, February 2000

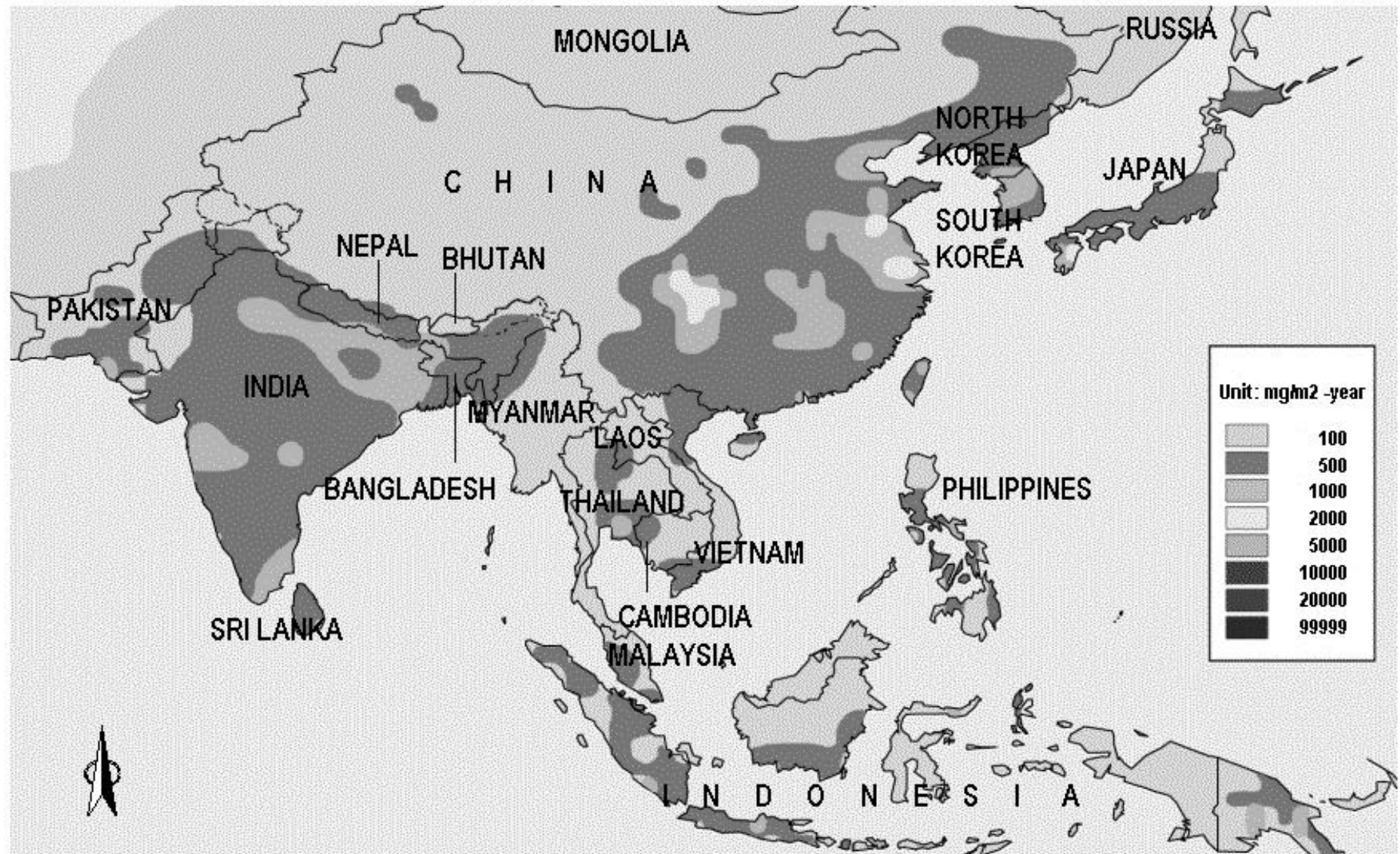


Comparison of the cost of electricity generation for typical natural gas, coal and nuclear power plants



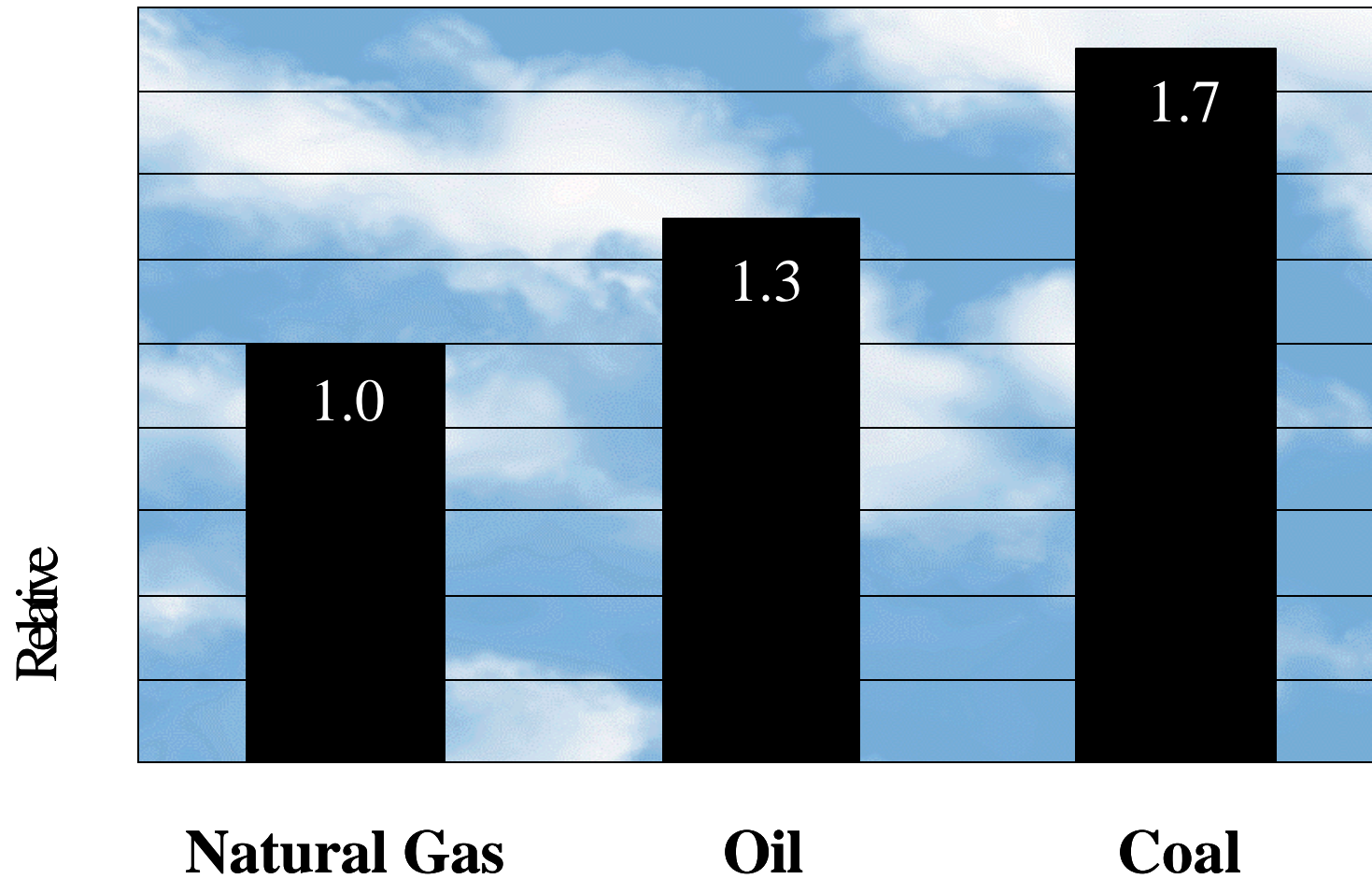
Sulfur Deposition in Asia in 2020 under No Control Scenario

Modified from RAINS-ASIA model



Sulfur Deposition in Asia in 2020 under Best Available Technology Scenario

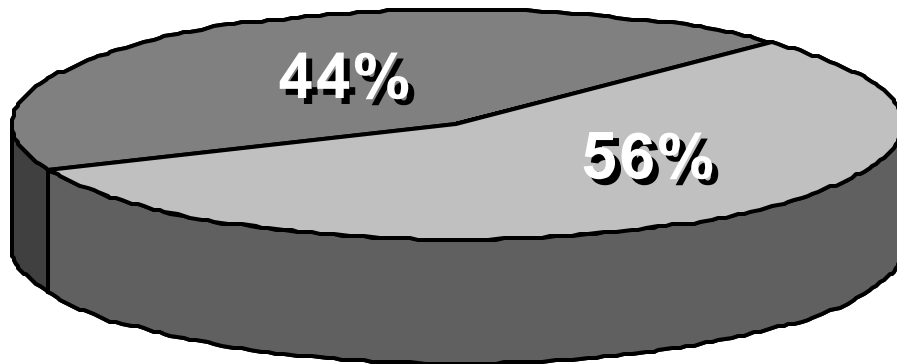
Modified from RAINS-ASIA model



Relative carbon emissions per unit of contained energy for natural gas, oil and coal

Source: C. Johnson and S. Srisawaskraisorn, 1999

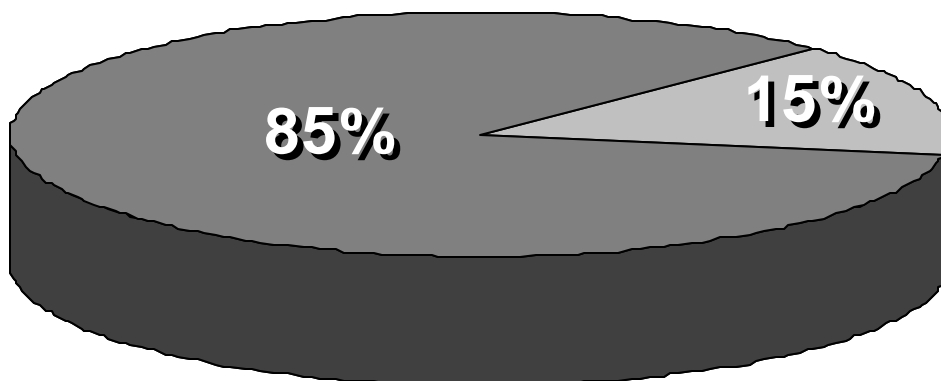
Private



Official

1990

Private



Official

2000^e

Capital Flows to Developing Countries: 1990 and 2000

Sources: World Bank, 2000; C.Johnson and S. Srisawaskraisorn, February 2000

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- Domestic Markets

Other Issues

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- Environmental Issues
- Liberalization/Privatization
- Attracting Capital
- Profitability

Conclusions

- Mining costs could increase
- Anthracite's "niche" markets at risk
- Opportunities in CFBC markets
- Beats hydro but probably not natural gas in domestic market
- Liberalization/privatization experiences of other APEC members can reduce risks to Vietnam
- Importance of environmental issues increasing
- Community concerns increasing